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(54) OPTICAL FIBER BUNDLE

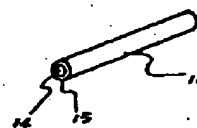
(57) Abstract:

PURPOSE: To obtain a flexible optical fiber bundle for use in an extremely bright endoscope, etc. by coating the bundle of core glass fibers and an acid-soluble coating glass with an acid-insoluble material at the fixed parts of both terminals, and removing said acid-soluble glass at the middle part to make the fibers flexible, and coating the outer circumference with a photo-setting resin.

CONSTITUTION: A core part 14 is obtained by inserting into an acid-soluble glass tube, plural single fibers 16, e.g., each consisting of an inner core composed essentially of PbO and SiO_2 and having a refractive index of about 1.6, and the outer circumference of an acid-soluble glass composed essentially of B_2O_3 and BaO and having a refractive index of about 1.5, and heat stretching it to form a melt-attached optical fiber bundle. The bundle is cut by proper length, both its terminals are coated with an acid-proof material, and then, the outer circumference glass is removed at the middle part by acid treatment. These bundles 19 are immersed into a photo-setting adhesive 20 having a refractive index of about 1.507, and light is passed from one end through a lens 22 and each fiber to harden each attached adhesive. The unhardened adhesive attached to the core glass is removed by washing to

obtain an optical fiber bundle having each fiber flexibly separated, and the area occupied by the core part larger than the conventional ones and higher in light transmittance.

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